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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,007	03/01/2004	Paul Tyrell	200310624-1	1269

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EXAMINER

FAISON, VERONICA F

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/791,007

Applicant(s)

TYRELL, PAUL

Examiner

Veronica F. Faison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-1-05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-11, and 13-20 are rejected under 35 U.S.C. 103(a) as obvious over Rehman (US Patent 6,177,498) in view of Cagle et al (US 2005/0137282).

Rehman teach a solvent system has been found which aids in start-up, drop ejection, decap and high frequency firing above 10 kHz for inks that comprise latex polymers. Two solvents 3-hexyne-2,5-diol and 1,2-octanediol in combination improve printability in latex polymer-containing ink jet ink which comprise one or more pigments and a vehicle comprising at least one organic, water-soluble solvent and water (abstract). The reference further teaches black inks comprising a pigment and a vehicle, wherein the about 5 to 50 percent by weight of a water-soluble organic solvent, about 0.05 to 10 percent by weight of a pigment, about 0.005 to 50 percent of durable latex polymer and water, in addition to the ester or diol/triol additive (col. 3 lines 26-37). The reference also teaches that the colorant may be self-dispersing pigment. The organic groups attached to the colorant that make the pigment self-dispersing include sulfonic acid, phosphonic acid, carboxylic acid, ammonium, quaternary ammonium or phosphonium group (col. 3 lines 39-56). The method for modifying pigments to be self-

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dispersing is treatment of a carbon black pigment with aryl diazonium salts comprising at least one acidic functional group, wherein the aryl diazonium salts include 4-aminobenzoic acid (col. 3 lines 63+). The vehicle of the ink composition comprises one or more co-solvents and water. The reference teaches that the preferred solvents include 1,5-pentanediol, 1,3,5-(2-methyl)-pentanetriol, and 3-methoxy-3-methylbutanol (col. 5 line 60-col. 6 line 21). The reference further teaches that additives such as potassium hydroxide, sodium hydroxide, and triethanolamine amine may be present in the ink composition (col. 6 lines 20-36). The reference fails to teach the specific firing frequency of 15 to 25 kHz as claimed by Applicant.

Cagle et al teach a latex particulate-containing ink jet ink that comprises an aqueous liquid vehicle including an additive C<sub>4</sub> to C<sub>8</sub> 1,2-alkanediol, a colorant that may be a pigment (abstract and para. 0012-0013). The reference further teaches that the ink composition may be fired at a frequency from 10 kHz to 20 kHz (para. 0028-0029).

Therefore it would have been obvious to one of ordinary skill in the art to fire the ink composition of Rehman at the firing frequencies taught by Cagle et al because Cagle et al discloses a similar ink composition taught by Rehman.

Claims 21 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rehman (US Patent 6,177,498) in view of Cagle et al (US 2005/0137282) in view of Komatsu et al (US Patent 6,379,443).

Rehman and Cagle et al are described above, but fails to teach ammonium salt.

Komatsu et al teach an ink composition comprising additive such as amines including triethanolamine and inorganic salts such as potassium hydroxide, sodium

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hydroxide, ammonium hydroxide, and quaternary ammonium hydroxide including tetramethylammonium.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced potassium hydroxide and sodium hydroxide with ammonium hydroxide, and quaternary ammonium hydroxide including tetramethylammonium because the substitution of art recognized equivalents as shown by Komatsu et al would have been within the level of ordinary skill in the art.

A prima facie case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA1979).

Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH<sub>2</sub>- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also In re May, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978).

Claims 2, 12, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rehman (US Patent 6,177,498) in view of Cagle et al (US 2005/0137282) as

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applied to claims 1, 3-9, 11, 13-21, and 23-27 above, and further in view of Belmont (US Patent 5,571,311).

Rehman and Cagle et al are described above, but fails to teach the pigment particle size.

Belmont teaches an aqueous ink jet ink composition comprising a carbon black product that is being treated with diazonium salts (abstract and col. 4 lines 36+). The reference further teaches in the examples particles sizes that overlap Applicant's claimed range, so not to clog the printhead nozzle (col. 2 lines 23-37).

Therefore it would have been obvious to one of ordinary skill in the art to use the carbon black particle size as taught by Belmont in the ink composition of Rehman so that the carbon black particle do not clog the print nozzles.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The remaining references listed on form 1449 have been reviewed by the Examiner and are considered to be cumulative to or less material than the prior art references relied upon in the above rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Veronica F. Faison whose telephone number is 571-272-1366. The examiner can normally be reached on Monday-Thursday and alternate Fridays 8 am to 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VFF  
9-14-05

  
J. A. LORENZO  
SUPERVISOR PATENT EXAMINER